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ABSTRACT

Instructions are given for using three citation indexes produced by the Institute for Scientific Information: "Science Citation Index," "Social Sciences Citation Index," and "Arts and Humanities Citation Index." A brief explanation of citation indexing and a discussion of its benefits precedes descriptions of how to use the three sections found in each index: "Permuterm Subject Index," "Source Index," and "Citation Index." An example of a search in each index is also provided. (ESR)

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AN INTRODUCTION TO CITATION INDEXING
AT THE UNIVERSITY OF RHODE ISLAND LIBRARY
by
John B. Etchingham

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AN INTRODUCTION TO CITATION INDEXING
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Background

Citation -- "A reference to. . . a written authority, etc."

Index -- "An alphabetical list of names, subjects, etc. . . ."¹

In his article in the Encyclopedia of Library and Information Science, Melvin Weinstock, an authority in the field of indexing, wrote:

Citation indexing is based on the simple concept that an author's references to previously recorded information identify much of the earlier work that is pertinent to the subject of his present document. These references are commonly called citations, and a citation index is a structured list of all the citations in a given collection of documents.²

Citation indexing as now available (1983) in the URI Library includes:

1. The sciences--Science Citation Index (SCI)
1961- . Ref. Z7401 S365. Located in the Science Index Area.
2. The social sciences--Social Sciences Citation Index (SSCI), 1969- . Ref. Z7161 S65. Located on Table IV in the General Index Area.

¹For notes see the last page.

3. The arts and humanities--Arts & Humanities Citation Index (A&HCI), 1979- . Ref. Z1215 A76222. Located on Table II in the General Index Area.
4. U. S. Supreme Court cases--Shepard's United States Citations, 1887- . Ref. KF78 S55. In the Reference stacks.

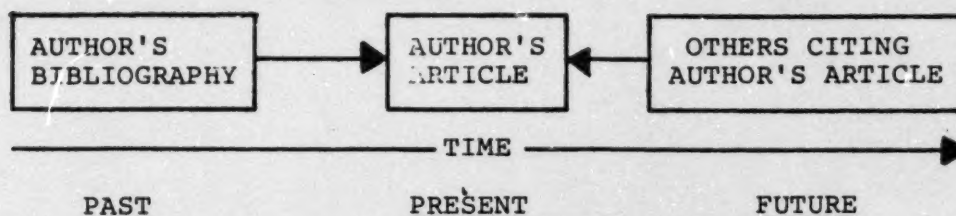
The first three indexes are produced by the Institute for Scientific Information (ISI). The last one is published by Shepard's/McGraw-Hill and as the start year indicates it is the forerunner of the others.

In principle all four are similar, i.e. they are records of later authors making reference to -- citing -- earlier relevant material.

The Shepard citator is uniquely a tool of those concerned with case precedent and related legal matters. It is not within the scope of this introduction to analyze it any further. An excellent overview of "Shepardizing" is in Cohen's Legal Research in a Nutshell, 3rd ed., Ref. KF 240 C54 1978.

The three ISI publications index what has been published in the sciences, the social sciences, and the arts and humanities. In the case of the SCI, the annual hard bound cumulative set is preceded by five soft bound bimonthly issues over the year. The annual sets for the SSCI and A&HCI

follow two soft bound issues (Jan-Apr & May-Aug) over the year. The coverage is international. Among other things they describe/list an author's bibliography (the source(s) he/she consulted/cited in the writing of his/her work). Additionally the indexes identify those who come later to cite earlier works considered appropriate to their own investigations. Placing the author in the middle, the process looks like this:



The citation indexes enable the researcher to find out who is citing whom. Some of the other benefits of such a system are:

1. Being able to determine earlier related material--able to trace the development of an idea.
2. Having access to professional criticism.
3. Having the ability to determine if the author's theme has been applied in other related fields.
4. That it brings together under one cover obscure materials which do not readily identify with

the research of a particular discipline but which are nevertheless related to or a part of that discipline.

How to Use

All the citation indexes, i.e., SCI, SSCI and A&HCI have three sections:

1. A subject index called the Permuterm Subject Index.
2. An author index called the Source Index.
3. A list of those who come later to cite the earlier works listed in the Source Index (Author index) called the Citation Index.

Order of use depends on what the researcher already knows. If there is no familiarity with the subject or its authors the Permuterm Subject Index for the year of interest is used first. This will reveal who has written on the subject. The user will next go into the Source Index with the name(s) of the author(s) gotten from the Permuterm Subject Index. The Source Index will provide specific and complete identification of all applicable articles. Finally the Citation Index (for the same and following years) are consulted to determine the extent of citation, i.e., how many times (if any) and where an

author's work has been cited in subsequent publications. The same name(s) used to go into the Source Index is/are used to enter the Citation Index.

If the researcher knows the authors in the subject then the Source Index is consulted with the Citation Index following. In this case the need to use the Permuterm Subject Index would probably be unnecessary.

If the researcher is aware of the published material and seeks only citations the Citation Index is used with little need for the other sections. See the following table:

<u>CASE</u>	<u>SECTION(S) TO BE USED</u>
No familiarity with the subject.	<u>Permuterm Subject Index</u> <u>Source Index</u> <u>Citation Index</u> (same and following years)
Familiar with the author(s) but not the specific article.	<u>Source Index</u> <u>Citation Index</u> (same and following years)
Familiar with author(s) and articles. Seeking citations only.	<u>Citation Index</u> (same and following years)

This method is not hard and fast. The sections may be used in any manner which is comfortable for the researcher. The method shown here, however, is a recognized approach given the conditions in the foregoing cases.

The following descriptions and exhibits provide an abbreviated presentation of each section. The reader is

cautioned as to the incompleteness of the exhibits which follow. Many symbols and much of the data have been omitted for the sake of showing the basic operating principle as clearly as possible. Full explanations are available in the beginning of all volumes.

In the example which follows the order of presentations is the Permuterm Subject Index, the Source Index and the Citation Index. The subject of this illustration is "The Relation between Race and Economic Status of Patients and Who Performs Their Surgery." This is an article written by L. D. Egbert which appeared in the New England Journal of Medicine in 1977. It was subsequently cited in 1979.

PERMUTERM SUBJECT INDEX

(from SSCI, v.5, 1977, various pages)

ECONOMIC

patients --- Egbert
 performs "
 race "
 relation "
 status "
 surgery "

PERFORMS

economic --- Egbert
 patients "
 race "
 relation "
 status "
 surgery "

**PRIMARY
TERM**

CO-TERM

RACE

economic --- Egbert
 patients "
 performs "
 relation "
 status "
 surgery "

SURGERY

economic --- Egbert
 patients "
 performs "
 race "
 relation "
 status "

exhibit one

PERMUTERM SUBJECT INDEX

"Permuterm" is a contraction of permuted (rearrange the order) terms. This index uses the significant words in journal article/book titles for subject indexing elements. Each significant term is paired with all other significant terms in the title until all possible two word combinations have been paired. Each pair is composed of a primary term and a subordinate co-term.

Words which do not contribute to the identification of an article are not used, e.g. "and," "between," "their," "who," etc. These are called stop words. For the full list of stop words see the lists in the front of the Permuterm Subject Index. This title has four primary terms. Three terms, i.e. "patients," "relation" and "status," are excluded as primary terms but allowed as subordinate co-terms. See the stop lists. The Egbert article in this instance is identified in this index no less than twenty-four times.

Entering with any one of the four primary terms and pairing it with any other significant term will lead the researcher to the Egbert article. This kind of title word manipulation greatly increases the chances of locating the title and therefore the subject matter contained in the work.

For a complete identification of the article the researcher next turns to the Source Index. Entry into the Source Index is with the author's name.

SOURCE INDEX

(from SSCI, v.3, 1977, page 2831)

EGBERT LD

Relation between Race and Economic
Status of Patients and Who Performs
Their Surgery

N ENG J MED 297(2):90-91 77 2R

FLEISS JL	73	STATISTICAL METHODS
LILIENFELD AM	75	F EPIDEMIOLOGY

exhibit two

SOURCE INDEX

The Source Index is an alphabetical arrangement of authors. Each entry contains all the essential information needed to uniquely identify an author's work. As previously mentioned, Egbert's article appeared in the New England Journal of Medicine. It is in volume 297, number 2 on pages 90 and 91. The year is 1977. The author's bibliography is a part of the entry. (Note: This last feature is not provided in the Science Citation Index.) The presence of the bibliography gives the researcher immediate access to a body of related literature. In the case of the Egbert article the author cited two references (2R). Both are books: Statistical Methods . . . by J. L. Fleiss and Foundations of Epidemiology by A. M. Lilienfeld. One was published in 1973; the other in 1976. A break out of abbreviations appearing is in the beginning of the volume.

If the researcher wants to determine if this article has been subsequently cited by other authors then the Citation Index is consulted.

CITATION INDEX

(from SSCI, v.1, 1979, page 3791)

EGBERT LD

77 NEW ENGLAND J MED 297 90

EISENBER JM	ANN INT MED	90	957	79
RHEE SO	MED CARE	17	737	79

exhibit three

CITATION INDEX

The arrangement of the Citation Index is again headed by author, i.e. cited author. Citing authors appear under the applicable article of the cited author. (Note: In this index the cited articles are identified by year, journal abbreviation with volume and beginning page NOT BY TITLE.)

In 1979 Egbert's 1977 New England Journal of Medicine article has been cited twice--once by an author named Eisenber, J. M. and again by Rhee, S.O. Identification of the citing authors' articles is provided, i.e. abbreviated journal title, volume, beginning page number and year.

If the researcher is inclined to examine the works of either or both of these authors (Eisenber and Rhee) he/she would proceed to the appropriate Source Index--in this case 1979--and start the cycle over again in their names. The process may be continued as long as and in as much depth as the researcher sees fit.

For the beginner, the initial experience with the citation indexes can be something less than rewarding. If approached with confidence and patience a Citation Index search can be very productive.

If you have any questions about these indexes please ask the reference librarian.

REFERENCES

1. Webster's New World Dictionary of the American Language,
College Edition, c1962.
2. Melvin Weinstock, "Citation Indexes," Encyclopedia of
Library and Information Science, vol. 5, 1971.